

ID ENVIRONMENTAL ASSOCIATES, INC.

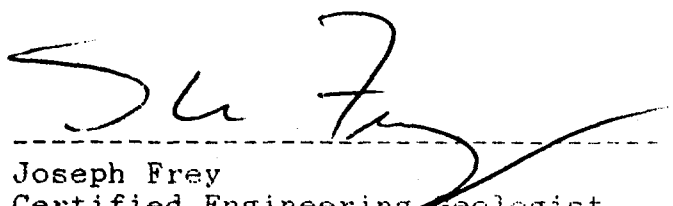
REPORT ON DEEP WELL ABANDONMENT AT MONADNOCK COMPANY FACILITY IN CITY OF INDUSTRY, CALIFORNIA

Prepared for:

TRW Inc.
One Space Park
Redondo Beach, California

March 1991

The boring abandonment described in this report was conducted under the supervision of Joseph Frey, a California-certified engineering geologist. Mr. Frey has expertise in the proper abandonment of ground water monitoring wells and the management of hazardous waste. His signature appears below.



Joseph Frey
Certified Engineering Geologist
Number 1500

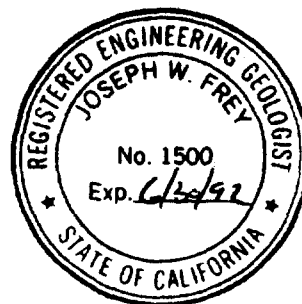


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1.0 INTRODUCTION

In February 1988, the Beylik Drilling Company drilled a 92.5-foot boring at the Monadnock Company facility located at 18301 East Arenth Avenue in City of Industry, California (see Figure 1 for site location). The boring, designated MW-10 and shown on Figure 2, was drilled in an attempt to establish a ground water monitoring well. A description of the drilling procedure is presented in "Report on the Drilling of a Deep Monitoring Well at the Monadnock Site 18301 E. Arenth Avenue City of Industry, CA 91749," dated June 27, 1988.

During the drilling of the boring, an industrial wastewater discharge line was penetrated by the drill bit, resulting in industrial wastewater entering the boring. This caused the sidewalls of the boring to collapse during removal of the augers, filling most of the hole. As a consequence, Beylik Drilling Company refilled with cuttings that portion of the boring that had not collapsed. They then moved to a new location.

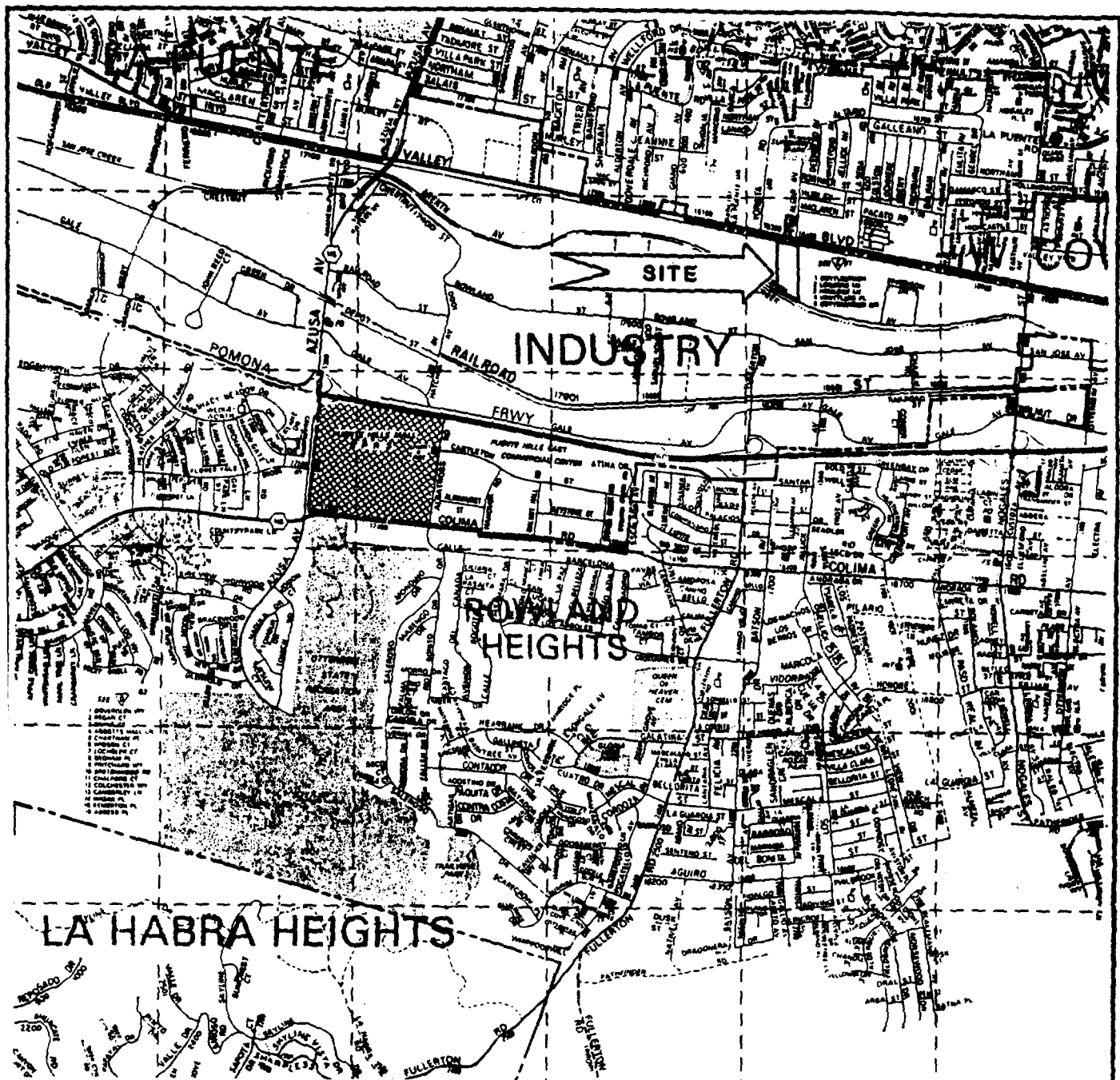
Because the boring was not abandoned in accordance with guidelines presented in "Water Well Standards: State of California" (California Department of Water Resources Bulletin 74-81), the California Regional Water Quality Control Board - Los Angeles Region (RWQCB) instructed TRW Inc. to properly abandon the boring. This request was made in a letter dated December 3, 1990. TRW Inc. subsequently contracted with ID Environmental Associates (IDEA) to conduct the work. The following sections summarize the boring abandonment.

2.0 BORING ABANDONMENT PROCEDURES

Prior to abandonment of the boring, a well destruction permit was applied for from the Los Angeles County Department of Health Services. A copy of the permit is included in Appendix A.

Work to properly abandon the boring was commenced on February 23, 1991. In order to ensure the integrity of the industrial wastewater discharge line during the abandonment of the boring, overburden was manually removed, exposing the ceramic discharge line. The location of the February 1988 boring was then determined by hand probing with a steel probe adjacent to the discharge line (the least compacted soil was assumed to be the location of the boring).

A steel casing was placed around the location of the February 1988 boring; the purpose of the steel casing was to minimize the possibility of contact between the drilling augers and the industrial wastewater discharge line. Drilling was then conducted within the steel casing. To ensure that the casing did not move



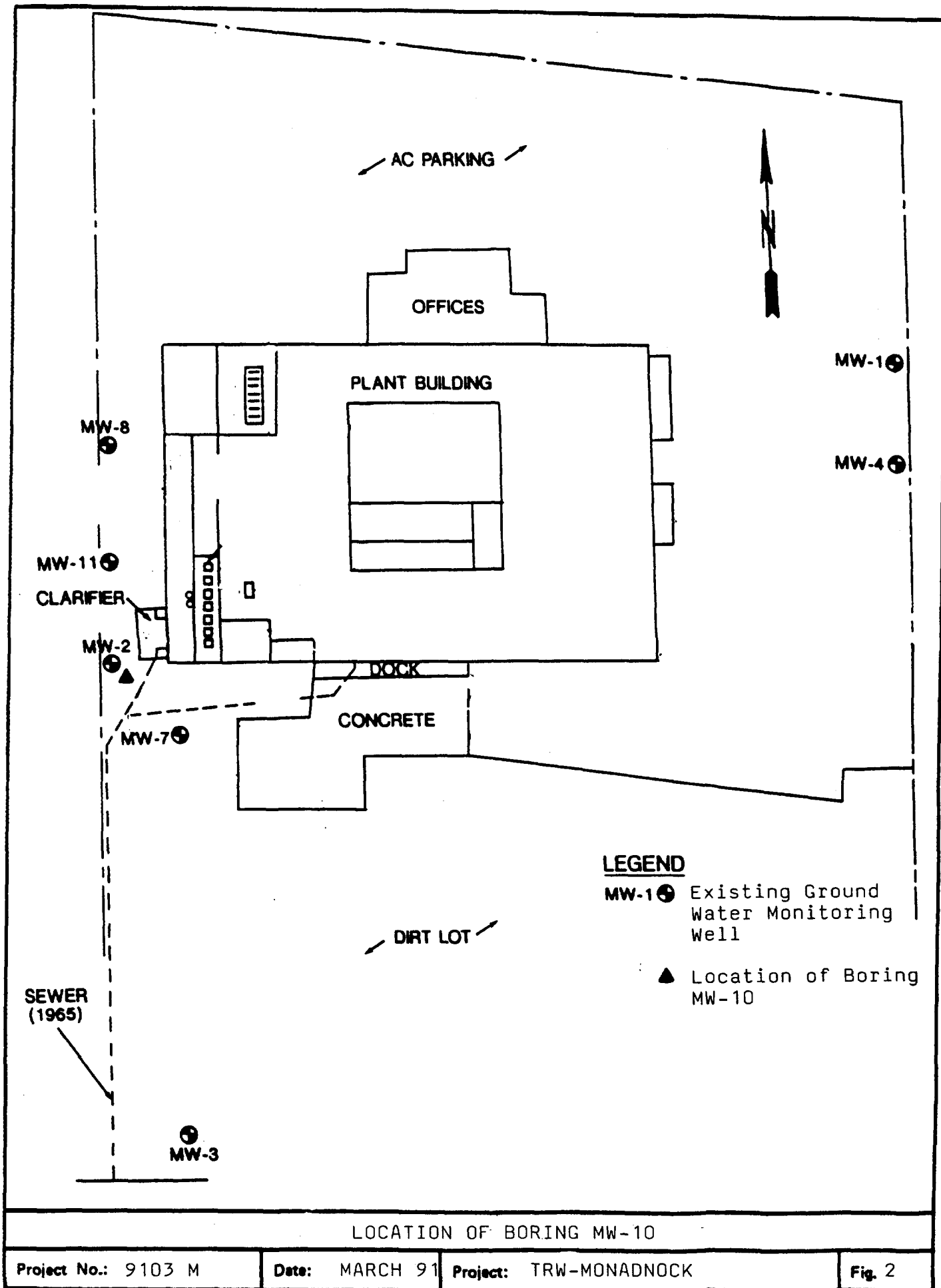
SITE LOCATION

Project No.: 9103 M

Date: MARCH 91

Project: TRW-MONADNOCK

Fig. 1



during drilling operations, it was driven approximately three feet into the underlying soil.

The February 1988 boring was drilled using both 6-inch hollow stem augers and 7 7/8-inch tricone bit mud rotary equipment. Consequently, 10 7/8-inch hollow stem augers were used during the present program to ensure overboring of the original hole.

Two soil samples were collected at approximately 20 and 50 feet below ground surface. The purpose of the samples was to evaluate if the path of the February 1988 boring was being followed. Blow count data for the two samples (two blows per 12 inches for each sample) indicate that the original path of the boring was being followed. In addition, drilling of the boring met with little resistance; the augers were basically "falling" down the path of the December 1988 boring.

Drilling continued to approximately 95 feet below ground surface. The first ground water zone was penetrated at about 45 to 50 feet beneath the site surface.

After drilling was complete, the boring was filled using neat cement. The cement was mixed on site at a ratio of four bags of cement (each bag containing 94 pounds) to approximately 30 to 40 gallons of water. Between 400 and 450 gallons of neat cement were placed in the boring; this quantity equates to the volume of the boring drilled using 10 7/8-inch hollow stem augers.

The cement was pumped through a hose placed near the bottom of the annulus of the hollow stem augers. The cement was pumped into the boring as the augers were withdrawn. The resulting cement column extended to the base of the excavation exposing the industrial wastewater discharge line. To avoid sealing of the discharge line, the cement was not allowed to overflow into the bottom of the excavation.

The final four feet (from the industrial wastewater discharge line to the surface) of the excavation was backfilled with clean pea gravel. This material was chosen to minimize settling of the final asphalt surface cover.

3.0 DISPOSITION OF EXCAVATED MATERIALS

Soil from the first four feet of the excavation and drill cuttings were placed in 55-gallon, sealed drums and left on site. This material will be disposed on site or transported to an appropriate disposal facility based on the results of sampling and chemical analysis.

APPENDIX A

WELL DESTRUCTION PERMIT FROM LOS ANGELES
COUNTY DEPARTMENT OF HEALTH SERVICES

APPLICATION FOR WELL PERMIT

ENVIRONMENTAL MANAGEMENT - 2615 S. GRAND AVENUE, LOS ANGELES, CA 90007, ROOM 604
COUNTY OF LOS ANGELES DEPARTMENT OF HEALTH SERVICES

DATE

1/23/91

TYPE OF PERMIT (CHECK)

- ☐ NEW WELL CONSTRUCTION
☐ RECONSTRUCTION OR RENOVATION
☒ DESTRUCTION

TYPE OF WELL

- ☐ PRIVATE DOMESTIC
☐ PUBLIC DOMESTIC
☐ IRRIGATION
☒ OBSERVATION/MONITORING
☐ CATHODIC
☐ INDUSTRIAL
☐ GRAVEL PACK
☐ TEST

TYPE OF CASING

None

METHOD OF SEALING OF CASING

None.

METHOD OF DESTRUCTION

Overdrill to 90 feet. Tremmie heat cement or bentonite grout from 90 feet to 5 feet inside hollow stem augers.

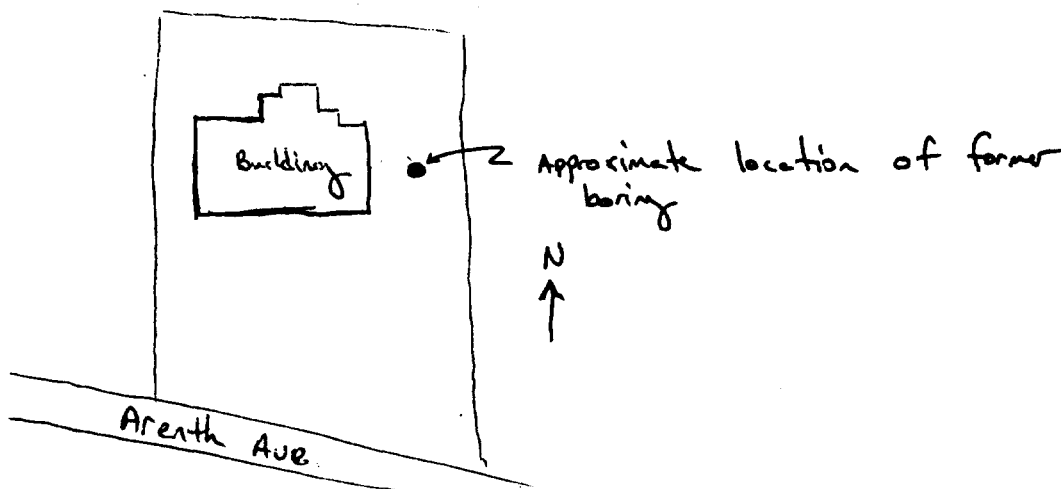
ADDRESS (NUMBER, STREET, AND NEAREST INTERSECTION)

18301 East Arenth Ave., ^(Los Angeles) City of Industry

CITY

City of Industry

DIAGRAM (SHOW PROPERTY LINES, STREET, ADDRESS, WELL SITE, SEWERS, AND PRIVATE SEWAGE DISPOSAL SYSTEMS ALONG WITH LABELS AND DIMENSIONS)



NAME OF WELL DRILLER (PRINT)

ABC Klover Drilling

TRADE NAME

ABC Klover

BUSINESS ADDRESS

1180 East Burnett Signal Hill

CITY

NAME OF WELL OWNER (PRINT)

TRW/Monadnock Co.

MAILING ADDRESS

One Space Park 140/2302

CITY

Redondo Beach, CA. 90278

I hereby agree to comply in every respect with all regulations of the County Preventive/Public Health Services and with all ordinances and laws of the County of Los Angeles and of the State of California pertaining to well construction, reconstruction and destruction. Upon completion of well and within ten days thereafter, I will furnish the County Preventive/Public Health Services with a complete log of the well, giving date drilled, depth of well, all perforations in casing, and any other data deemed necessary by such County Preventive/Public Health Services.


Applicant's Signature

DISPOSITION OF APPLICATION: (For Sanitarians Use Only)

- ☒ APPROVED
☐ DENIED
☐ APPROVED WITH CONDITIONS

If denied or approved with conditions, report reason or conditions here:

DATE

2-11-91

SANITARIAN

W. Mayes

DATE

2-26-91

SECTION CHIEF

S. Smith

ID ENVIRONMENTAL ASSOCIATES, INC.

March 8, 1991

Los Angeles County Department of Health Services
Environmental Management
2615 South Grand Avenue, Room 604
Los Angeles, California 90007

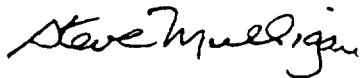
SUBJECT: WELL DESTRUCTION PERMIT FOR MONADNOCK COMPANY
FACILITY IN CITY OF INDUSTRY, CALIFORNIA

Dear Sirs:

On February 26, 1991, the enclosed well destruction permit was issued to TRW/Monadnock Company for closure of a former boring. On the original application, the location of the boring was incorrectly stated. The correct location of the boring, designated MW-10, is shown on the attached Figure 2. Please correct your records as necessary.

Sincerely yours,

ID ENVIRONMENTAL ASSOCIATES



Steve Mulligan
Principal Associate

cc: John Clark, TRW Inc.
Joe Frey, Frey Environmental

LOCATION OF BORING MW-10